Instructions for the SimpleGene program

This program runs through a number of concepts, which are summarised as follows:

A. Life cycle
B. Genes and characters
C. Genetic ratios
D. Families with more than one child

There are 10 exercises, which are intended to be done in order. They can be described briefly as follows:

1.   Organise life cycle
2.   Single gene and character
3.   Single gene and character - infer dominance
4.   Life cycle with single gene
5.   Segregation - single family
6.   Segregation - two families
7.   Genetic ratio (1)
8.   Genetic ratio (2)
9.   Two-child families
10.   Multiple-child families

Moving through the exercises

The exercises are intended to be done in order. When you complete any exercise, an arrow will appear at the bottom right-hand corner of the screen leading to the next exercise.

You can, at any time, return to previous exercises using the back arrow (left-hand bottom corner) or jump around using the **GoTo** menu. To get the most out of the exercises, you should also be prepared to repeat exercises with which you have any problem. You do this from the **Repeat current exercise** command in the **Exercises** menu.

Dragging objects

A key action which you must be able to do in most exercises is to drag objects around the screen. Click on the object in question, without releasing the mouse button. Then, while holding down the mouse button, drag the outline rectangle to a different place on the screen before releasing the button.

Choosing genes

All simulations involves a single locus with alleles A and a . These can be copied either from the parents or from a 'template' on the left-hand side of the screen. In general, genes are copies from a previous stage in the pedigree. So if you need to put genes into the offspring, these must come from the parents, or from the gametes, rather than directly from the template. It should usually be clear in the examples where genes are copied from.

Some exercises involve a free choice of genes, others require that a particular gene be used.

Choosing characters

Characters are not inherited, but are chosen from a template on the left-hand side. In some exercises both 'eye' and 'hair' characters need to be put into place, but most often the program will assign one character.

A character can only be assigned to an individual AFTER its genes have been assigned.

Changing genes and characters

If you change your mind about assigning a gene or character, simply choose a new one and drag it over the top of the previous one. The previous one will be discarded and the new one slotted into place.

Genes can also be disposed of by dragging the gene out of its slot and depositing it nearby or in the garbage bin if this is available. Characters cannot be selected in this way.

Arrows and labels

In exercises where you need to put in arrows and labels, these need to be copied from the template. There is a limit on the number of each type of arrow and label, although usually you will not need as many as are available.

A garbage bin is available in such exercises, in case you want to get rid of an arrow or label you have copied. Just drag the object over the garbage bin and release it. Dragging individuals or gametes over the garbage bin, however, has no effect.

Marking the exercise

When you have finished the tasks for an exercise, click the **Done** button. The program will then go through the different tasks in turn to see that they have been done correctly. As it comes to something which is unfinished or in error it will stop and show the case where it thinks there is a problem. If there is more than one error, the second one will only be pointed out after the first one is rectified.

The program cumulates the errors, and at the end it will print out the total number of errors, plus the time taken to complete the exercises.

Help

This is available at any time for an exercise by pressing the **?** button at the bottom right of the screen. Help for any exercise, or general help may be obtained from the **Help** menu.

Hints are available in some exercises. Try to do the exercises without using them if you can, but there are no penalties for using hints.